**Undergraduate Research Project**

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| **Project Name:** | 2-parameter BCD-type quantum affine algebras | **Number of Positions:** | 1-2 |
| **Supervisor:** | Oleksandr (Sasha) Tsymbaliuk | | |
| **Supervisor e-mail:** | otsymbal@purdue.edu | | |
| **Project Description:** | This project is devoted to the study of two-parameter classical quantum groups. The first objective will be to evaluate the affine R-matrix (through finite-to-affine passage) in BCD-types. The second goal is to derive the Drinfeld realization of the corresponding quantum group by performing the Gauss decomposition of the generating T-matrix in the RTT realization (match with existing definition in CD-types while obtain a new algebra for B-type). If time permits, establish the shuffle realization of the corresponding quantum algebras and their RTT integral forms. | | |
| **Final Deliverables:** | Final Report. Published article is possible if significant results are obtained. | | |
| **Weekly Working Hours** | * Minimum of 10h per week during the semester * Full time during the summer | | |
| **For Credits/Voluntary** | Voluntary (1 credit course is possible, if arranged and approved in advance)  Funding is possible (but needs to be applied for) | | |
| **Desired Qualifications** | Required: Linear Algebra, Abstract Algebra  Preferred: Lie algebras, Quantum groups | | |

**If you are interested in participating in this research project, please send an e-mail to the supervisor e-mail listed above together with a resume, a list of what courses you’ve taken or a copy of your transcript, and a personal statement explaining why you are interested in this project.**